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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,022	06/25/2001	Ali Najib Saleh	CIS0008P8US	9442

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EXAMINER

CHO, HONG SOL

ART UNIT	PAPER NUMBER
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2616

MAIL DATE	DELIVERY MODE
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06/14/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary

Application No.

09/891,022

Applicant(s)

SALEH ET AL.

Examiner

Hong Cho

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-117 and 119-124 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 113 is/are allowed.
- 6) ☒ Claim(s) 1-7, 14, 16, 17, 29-35, 42, 44, 45, 57-63, 70, 72, 73, 85-91, 98, 100, 101, 114-117, 119, 120, 123 and 124 is/are rejected.
- 7) ☒ Claim(s) 8-13, 15, 18-28, 36-41, 43, 46-56, 64-69, 71, 74-84, 92-97, 99, 102-112, 121 and 122 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This office action is in response to the amendment filed on 05/23/07. Claim 118 has been cancelled. Claims 1-117 and 119-124 are pending in the instant application.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 1-3, 29-31, 57-59, 85-87, 114-117, 119, 120, 123 and 124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bentall et al (US 6282170), hereinafter referred to as Bentall, in view of Phelps et al (USPUB 20020118636), hereinafter referred to as Phelps.

Re claims 1, 29, 57, and 85, Bentall discloses restoring traffic on alternate virtual path in an optical network (*restoring a virtual path using an alternate physical path*, column 6, lines 35-36). Bentall discloses determining spare capacity of each link of alternate routes (*identifying a plurality of nodes with resources, wherein nodes with resources are ones of said nodes having a resource necessary to support virtual path*,

figure 4, element 113). Bentall discloses selecting alternate routes after determining spare capacity on each route (*identifying an alternate path in response to said identifying said plurality of nodes with resources, said alternate path comprising ones of said nodes with resources*, column 6, lines 1-6). Bentall fails to disclose a candidate node determining if it has sufficient resources to support a virtual path and receiving information indicating it has sufficient resources to support a virtual path. Phelps discloses determining if there is any capacity available at each computing node (figure 4, elements 402-410) and replying to originating node that it has a sufficient capacity (paragraph [0043], lines 1-5). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Bentall to implement the process of checking capacity of link at each computing node by transmitting request message so that a given virtual path would be re-established through an alternate route with sufficient bandwidth.

Re claims 2, 30, 58, and 86, Bentall discloses restoring a virtual path using an alternate physical path (figure 4, element 114).

Re claims 3, 31, 59, 87, 120, 123 and 124, Bentall discloses determining spare capacity of each link of alternate routes determining if the candidate node has sufficient resources to support the virtual path, figure 4, element 113), configuring an alternate physical path by establishing a communication connection between nodes with resources (figure 3, element 102) and provisioning virtual path over the alternate physical path (figure 4, element 114).

Re claims 114 and 115, Bentall discloses determining spare capacity of each link of alternate routes (*determining whether a node under consideration would be appropriate for use in restoring said virtual path*, figure 4, element 113).

Re claim 116, Bentall inherently discloses finding an alternate path connecting nodes with ports to support additional data traffic.

Re claim 117, Bentall discloses allowing various levels of quality of service within network (column 17, line 65 to column 18, line 5).

Re claim 119, Bentall inherently discloses rejecting a candidate node if the candidate node does not have sufficient resources to support a virtual path in selecting an alternate path (figure 4, element 113).

Claims 4-7, 14, 16, 32-35, 42, 44, 60-63, 70, 72, 88-91, 98 and 100 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bentall in view of Phelps and further in view of Finn et al (U.S 6728205), hereinafter referred to as Finn.

Re claims 4, 32, 60 and 88, Bentall and Phelps disclose detecting a failure in a virtual path by receiving a failure message packet (column 7, lines 29-31) and restoring a virtual path using an alternate physical path (figure 4). Bentall and Phelps fail to disclose provisioning a virtual path on a physical path between a first and a second node of an optical network wherein each one of nodes is coupled to at least one another of nodes by a plurality of optical links. Finn discloses network nodes connected through fiber optic cables and re-routing messages through a secondary path in case a primary path fails (column 16, lines 1-8). It would have been obvious to one having ordinary skill in the art

at the time the invention was made to modify the network of Bentall and Phelps to be utilized in optical network of Finn as suggested by Bentall (column 6, lines 35-36). The motivation is to get the benefit of high-speed network communications through fiber optic cables so that a prompt restoration is achieved through high-speed fiber optic communications.

Re claims 5, 6, 33, 34, 61, 62, 89 and 90, Bentall discloses all of the limitation of the base claim, but fails to disclose restoring a virtual path less than 2 seconds or 250 milliseconds. Finn discloses restoration time being about 50 milliseconds. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Bentall to be recovered less than 200 milliseconds by employing the concept of automatic protection switching in an optical network of Finn. The motivation is to provide fast restoration scheme and time so that switching to an alternate virtual path is transparent.

Re claims 7, 35, 63 and 91, Bentall discloses detecting a failure in a virtual path by receiving a failure message packet (column 7, lines 29-31).

Re claims 14, 16, 42, 44, 70, 72, 98 and 100, Bentall discloses intermediate nodes receiving a failure message (column 7, lines 33-35).

Claims 17, 45, 73 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bentall and Phelps in view of Finn and further in view of Azuma et al (U.S 6430150), hereinafter referred to as Azuma.

Re claims 17, 45, 73 and 101, Bentall discloses all of the limitations of the base claim, but fails to disclose acknowledging a failure message and changing a state of the virtual path to down and releasing resources of the virtual path. Azuma discloses acknowledging a failure message and changing a state of the virtual path to down and releasing resources of the virtual path (column 6, lines 41-51; column 8, lines 15-18). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the network of Bentall by adding to it the process of Azuma so that unused resources would be relocated to alternate nodes for providing an alternate route.

Allowable Subject Matter

4. Claim 113 is allowed.
5. Claims 8-13, 15, 18-28, 36-41, 43, 46-56, 64-69, 71, 74-84, 92-97, 99, 102-112, 121 and 122 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed on 05/23/07 have been fully considered but they are moot in view of new ground of rejections.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hong Cho whose telephone number is 571-272-3087. The examiner can normally be reached on Mon-Fri during 7 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

hc
Hong Cho
Patent Examiner
6/6/2007